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| EXAMINER |
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WILSON, MICHAEL H

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| ART UNIT | PAPER NUMBER |
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1786

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04/28/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

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|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/560,735 | Applicant(s) NII ET AL. | |
| | Examiner MICHAEL WILSON | Art Unit 1786 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is in response to Applicant's amendment filed 11 February 2010, which amends claim 1 and adds new claims 11 and 12.

Claims 1-4, 11, and 12 are pending.

2. The rejection under 35 U.S.C. 102(b) of claims 1-4 as being anticipated by Seo et al. (US 2002/0086180 A1), is overcome due to Applicant's amending of the claims in the reply filed 11 February 2010.

Claim Objections

3. Claim 11 is objected to because of the following informalities:

The claim appears to end in 2 periods, one period should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, the claim recites “X represents –O-, -S-, =N-, or –N-Ra; X represents -O-, -S-, or –N-Ra;” (page 4, lines 1 and 2). A single variable, in this case X, should only be defined once in the claim. The second definition of X is narrower than the first definition, lacking “=N-”. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). It is recommended to amend the claim to read either --X represents –O-, -S-, =N-, or –N-Ra-- or --X represents –O-, -S-, or –N-Ra-- (but not both).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kwong et al. (US 2002/0074935 A1) as evidenced by Tsukahara et al.(US 2006/0057427 A1) and Lamansky et al. (US 2002/0182441).

Regarding claim 1, Kwong et al. disclose an organic electroluminescent device comprising a pair of electrodes with a light-emitting layer, hole transport layer, and electron transport layer between the electrodes ([0054]-[0056] and [0058]). The reference discloses the light-emitting layer comprising two host compounds, NPD and

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Alq₃, and a red phosphorescent dopant, PtOEP [0064], which emits light at ~650 nm. The reference teaches a hole injection layer (HIL) between the light-emitting layer and the anode [0064]. This HIL is reads on the hole transport layer (HTL) of the instant claims. The HIL of Kwong et al., formed using copper phthalocyanine (CuPc), is the only layer between the anode and the light-emitting layer in example 1 [0064] and therefore must inherently transport (and inject) holes from the anode into the light-emitting layer for the device to function. Transporting holes from the anode to the light-emitting layer is the basic function of a hole transport layer. Therefore the HIL of Kwong et al. performs the same function as the HTL of the present claims.

While the reference does not disclose the ionization potentials of the materials the ionization potential of CuPc, NPD, and Alq₃ are 5.1, 5.4 5.8 eV respectively as evidenced by Tsukahara et al. (table 1, page 13)

Regarding claim 2, Kwong et al. disclose all the claim limitations as set forth above. The reference discloses PtOEP as a suitable red phosphorescent material for the luminescent layer [0121]. While the reference does not disclose the lowest triplet energy of PtOEP the lowest triplet energy of PtOEP is known to be 1.9 eV, as evidenced by Lamansky et al. ([0133] table 1), which is between 167.6 and 230.5 KJ/mol.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 3, 4, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwong et al. (US 2002/0074935 A1) as evidenced by Tsukahara et al.(US 2006/0057427 A1) and Lamansky et al. (US 2002/0182441) as applied to claim 1 above and in view of Ise et al. (US 2002/0028329 A1).

Regarding claims 3, 4, 11, and 12, Kwong et al. disclose all the claim limitations as set forth above. However the reference does not explicitly disclose a compound of instant formula (I) as an electron transport material for the luminescent layer.

Ise et al. teach a similar organic electroluminescent device. The reference teaches heterocyclic compounds of instant formula (I) ([0021], [0059]-[0061], [0082]-[0084]) as suitable electron transport materials for the luminescent and electron transport layers ([0118] and [0195] table 1). The reference teaches that using compounds of instant formula (I) those layers gives a light-emitting device with high luminescent efficiency [0027].

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It would be obvious to one of ordinary skill in the art at the time of the invention to use the electron transport compounds of Ise et al. as electron transport host material in the luminescent layer of Kwong et al. One of ordinary skill would reasonably expect such a combination to be suitable given that Ise et al. teach the compounds as suitable electron transport materials and that they may be used as host material for luminescent layers in phosphorescent organic electroluminescent devices (Ise: [0195] table 1). One of ordinary skill in the art would be motivated by a desire to make a light-emitting device with high luminescent efficiency.

Regarding the ionization potential of the electron transport host of the luminescent layer, while the reference does not explicitly disclose the ionization potential, the compounds of modified Kwong et al. are within the formula claimed by applicant as having a larger ionization potential. Therefore since the electron transport host compounds disclosed by modified Kwong et al. being within the formula claimed by applicant, the ionization potential of the compounds would be expected inherently to have the same properties as disclosed by applicant. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. In *re Fritzgerald*, 205 USPQ 597, In *re Best*, 195 USPQ 430.

Response to Arguments

11. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection set forth above, necessitated by amendment.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571) 270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1786

MHW